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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WILSON, DONALD R

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 01/02/2002

LD

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/541,690

Applicant(s)

DUVAL ET AL.

Examiner

D. R. Wilson

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 18-59 is/are pending in the application.
- 4a) Of the above claim(s) 1-6, 8-10, 21-44, 47, 48, 50-52 and 54-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 18-20, 45, 46, 49, 53, 58 and 59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-10 and 18-59 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to the Restriction/Election Requirement

1. Applicant's election with traverse of the inventions of Group IV, claims 18-20, 45-46, 53-54 and 58, drawn to a polymerized and cross-linked chiral compound, in Paper No. 9 is acknowledged. The traversal is on the ground(s) that the Examiner has not established that examining all the claims would constitute a serious burden as well as providing appropriate justification for the restriction requirement. This Examiner acknowledges that the restriction requirement lacks a sufficient showing as to why the Groups of inventions are distinct from one another and this Examiner has recast the restriction requirement as is set forth below. However, it is also to be noted that the lack of clarity of what is being claimed in a number of instances make grouping of the claims tentative and examination of the claims difficult if not impossible.

2. In order to advance prosecution Claims 7, 18-20, 45-46, 49, 53-54 and 58-59 belonging to the original group of restricted Claims will be addressed below in respect to 35 U.S.C. § 112. These claims will be separated into two distinct inventions in the new restriction set forth below, in which Groups VIII and IX correspond to the supported versus unsupported polymerized and cross-linked chiral compounds. The prior art will not be considered until the claimed subject matter is clarified.

3. Applicants election of species as shown on page 4 of Paper 4 is also acknowledged. However, this is not seen that the specification is enabling for q greater than 1.

Restriction Requirement

4. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1, 2, 29, 32, 37 and 42, drawn to method of making a chiral compound adduct, classified in class 530+, subclass 200+.
- II. Claims 3, 43 and 50, drawn to method of making silane derivatives of Group I inventions, classified in class 530+, subclass 200+.
- III. Claims 4-6, 30 and 44, drawn to methods of making chiral supports, classified in class various, subclass various.

Art Unit: 1713

- IV. Claims 8, 9, 28 and 48, drawn to method for separating chiral compounds, classified in class various, subclass various.
- V. Claims 10, 31, 33 and 38, drawn to method of making polymers of bifunctional alkenyloxyaryl or alkenylaryloxyaryl compounds, classified in class 526, subclass 286+.
- VI. Claims 34-35, 39 and 40, wherein $r = 0$, and Claims 36 and 41, drawn to method for making polymerized and cross-linked chiral compounds, classified in class 526, subclass 89+.
- VII. Claims 34, 35, 39 and 40, wherein $r \geq 1$, drawn to drawn to method for making polymerized and cross-linked chiral compounds attached to a support, classified in class 428, subclass 402+.
- VIII. Claims 7, 18, 19, 45, 49, 53-54 and 58-59, wherein $r = 0$, and Claim 20 (unsupported), drawn to polymerized and cross-linked chiral compound, classified in class 526, subclass 238.1+.
- IX. Claims 7, 18, 19, 46, 49, 53-54 and 58-59, wherein $r \geq 1$, and Claim 20 (supported), drawn to polymerized and cross-linked chiral compound attached to a support, classified in class 427, subclass 212+.
- X. Claims 21-27, 47 and 55, drawn to chiral compounds on a support, classified in class 530, subclass 200+.

5. Claims 47, 49-58 are unclear as to what is being claimed and their groupings can only be considered to be tentative pending further clarification of what is being claimed. In claims 49-58 which compound according to claim 18 or 19 is being referenced is unclear and it has been assumed to be the polymerized and cross-linked compound. Where only a chiral compound is specified it could be the unpolymerized and uncross-linked, or cross-linked and polymerized compounds. Where only a compound is specified, it could also be one of the other compounds of the claims being referenced. It is also known what analogous compounds are. Additionally as Claims 21-28 depend from cancelled claims it is uncertain as to what is being claimed, and Claim 47, "used to claim 21" makes no sense.

6. The inventions are distinct, each from the other because:

Art Unit: 1713

7. Inventions of Groups I, II, VI and VII are related respectively to Groups X, X, VIII and IX as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as, for Groups I and II, introducing unsaturation in the final product after reaction of suitable precursors (e.g., esters, quaternary ammonium compounds etc.) containing functionality which will react with the product containing a chiral unit, for Group VI and VII inventions, preparing the link A prior to reaction of the functional group with the chiral compound.

8. Inventions of Group IV are related to the inventions of Groups IX-X as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a materially different process of using that product. The inventions of Group IX can be used as a delivery form of nutrients to plants.

9. Inventions of Group VIII are related to the inventions to Group IX, as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product of Group VIII is deemed to be useful as a coating composition, and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Art Unit: 1713

10. The processes of Groups I to VII are distinct from one another because they comprise a combination of different steps to produce different products. The processes of Group I are distinct from Groups VIII and IX, Group II are distinct from Groups VIII to IX, Group III are distinct from Groups VIII to X, Group IV from Groups VIII, Group V from Groups VIII to X, Group VI from Groups IX-X, and Group VII from Groups VIII and X, because the methods do not lead directly to or from the compounds claimed

11. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and/or have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Election of Species Requirement

12. This application contains claims directed to the following genera of patentably distinct species of the claimed invention:

- a. starting material and reactants for each process step (Groups I-VII,
- b. final products, including support material if present (Groups
- c. method of using chiral support and compounds prepared or separated (Group V)

13. Applicant is required under 35 U.S.C. § 121 to elect a **single ultimate** disclosed specie for each of the above genera for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Where specific species are not identified in the claims applicant should elect a specific specie from the specification. An alternative method of election is to identify an Example which collectively exemplifies the elected species. If the inventions of Group IX are elected, applicant may continue with the previously elected specie but a further definition of "q" is required.

Because of the nature of the claims the Examiner cannot clearly determine which claims are generic to the above species.

14. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

15. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an

Art Unit: 1713

allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

16. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Conclusion to Restriction/Election Requirement

17. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

18. Applicant is reminded that if claims directed to the product are elected, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined. See M.P.E.P. § 821.04.

19. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112, First Paragraph

20. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

21. Claims 7, 18-20, 45-46, 49, 53-54 and 58-59 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification provides no teaching of how to make polymerized and cross-linked polymers of the instant claims. Specifically there is no teaching of how to make

Art Unit: 1713

polymers of general formula (I) wherein (i) the chiral units are linked directly to one another, and (ii) multiple units of "LINK A" are connected through peroxy linkages, i.e. q, q1, q2 or n greater than 1.

Claim Rejections - 35 USC § 112, Second Paragraph

22. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

23. Claims 7, 18-20, 45-46, 49, 53-54 and 58-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

24. The languages of Claims 18 and 19 are indefinite for the following reasons:

a. The languages are incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the recited process steps in the product by product language do not lead to the directly to the structure of either "general formula (I)" of Claim 18, or the "general formula" of Claim 19.

b. The claims speak to a polymerized and cross-linked chiral compound, yet the structures of "general formula (I)" of Claim 18, and the "general formula" of Claim 19, are not cross-linked and if "s" or "s1" are equal to "1" they are clearly not polymers.

c. The claims reference alkenyloxyaryl or alkenylaryloxyaryl "type" compounds. When appended to an otherwise definite expression, "type" so extends the scope of the expression as to render it objectionably indefinite. *Ex parte Copenhaver*, 109 USPQ 118. ✓

d. Bifunctional compounds are defined by a formula having two to a large number of functional groups, i.e., when n is greater than 1, and or the "R" group also contains functionality. Thus the meaning of "bifunctional" is not understood.

e. It is not seen how "R" can be a hydroxyl group as such a group would by definition be reactive with "Q", and further, vinyl alcohols are not known to be stable species.

f. The language "may be" substituted is indefinite because it can not be told whether or not the groups are substituted. However, the office does accept language such as "optionally"

Art Unit: 1713

substituted. Further, where used in the claim languages it is unclear which member of the Markush groups may be substituted.

g. "X" is defined as an optional alkyl or aryl group, which are monovalent groups, yet "X" is difunctional, i.e., would need to be alkylene or arylene. Further, what is meant by optional is unclear. Additionally, such groups would not be substituted with hydrogen, as the hydrogen atom is what is being substituted. As above it is not seen how the groups can be substituted with hydroxyl as these are reactive with "Q".

h. "Ar" is also divalent and thus can not be an aryl or polyaryl group, i.e., they would have to be arylene groups. It also would not be substituted with hydrogen for the same reasons as above, nor is it seen that it can be substituted with for instance hydroxyl, amino or thiol groups, as these are reactive with "Q" by definition.

i. As "K" is a single bond, silane or siloxane group, it is not seen how it further contains an "R" group.

j. The "chiral unit" may be a unit derived from a chiral compound but it is no longer a chiral compound.

k. Ar, R and X in the links of the general formulas are different than in the initial "bifunctional compound", which is not seen to be possible.

l. Claim 18 is also of improper form as it contains two sentences making it further indefinite.

25. Claim 20 is indefinite because it is unclear as to what the extra bonds on the chiral units are attached, and in the case of the first three formulas exceeds the number of linking bonds shown in the parent claim.

26. Claims 45 and 46 are indefinite because it is unclear which "compounds" of Claims 18 and 19 are being referenced. Additionally, "parapent-4-enoxybenzoic acid" it is not recognized nomenclature in the art. It is suggested that the recognized name "p-(4-pentenyl)oxybenzoic acid" (CAS RN 14142-82-6) be used if that is the intended compound.

Art Unit: 1713

27. Claims 49 and 54 are indefinite because it is unclear which "compounds" of Claims 18 and 19 are being referenced, and the Markush groups are of improper form. Additionally, it is not seen how "-NH₂" can be a group having the defined reactivity.

When materials recited in a claim are so related as to constitute a proper Markush group, they should be recited in the conventional manner, or in the alternative. For example, "wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation, or alternatively, "wherein R is A, B, C or D" is also proper. See M.P.E.P. § 2173.05(h).

28. Claims 53 and 58 are indefinite because it is unclear which chiral compound, e.g., polymerized, unpolymerized, or products are being referenced.

Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. R. Wilson whose telephone number is 703-308-2398.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.



D. R. Wilson
Primary Examiner
Art Unit 1713